What is Claimed:

1. A method for modifying ground water chemistry in an aquifer comprising adding an oxygen-containing gas into the aquifer wherein the addition is by diffusion and modifying the ground chemistry by gas diffusion of the oxygen-containing gas into the aquifer.

2. The method of claim 1, wherein the oxygen-containing gas addition is made through aeration wells around a production well.

3. The method of claim 1, where the aeration wells are equipped with a well screen, and diffusers for adding the oxygen-containing gas.

4. The method of claim 1, wherein the aeration wells are located at a distance from the production well which allows desirable reactions at a desirable distance "upstream" from the production well and from the aeration wells so that a manipulation of the aquifer does not have deleterious effects on a hydraulic capacity of the aquifer.

5. The method of claim 1, wherein the aeration wells are located at such a distance from the production well that desirable reactions do not decrease the hydraulic capacity at the production well.

6. The method of claim 1, wherein the aeration wells are located in a manner to achieve desirable reactions in such a location and direction from the production well so that the required water quality is achieved.

7. The method of claim 2, comprising using fine bubble diffusers in the aeration wells to bring about desirable reactions.

8. The method of anyone of claims 1-8, wherein there is a reduction of the level of iron, arsenic and/or manganese in the ground water of the aquifer.

9. A method according to any one of claims 1-8 comprising sequestering or coprecipitating an amount of a target substance such as iron, arsenic or manganese from the ground water.

10. A system for delivering an oxygen-containing gas to ground water comprising aeration wells around at least one production well wherein the aeration well comprises a means for delivery of the oxygen-containing gas to an aquifer in a finely diffused form.

11. The system of claim 11, wherein the oxygen-containing gas is injected by fine pore diffusers.

12. The system of anyone of claims 10-11 further comprising a controller to monitor gas delivery and to control gas delivery.

13. A method for modifying ground water chemistry in an aquifer comprising adding an oxygen-containing gas and Fe^{2+} into the aquifer wherein the gas delivery is by diffusion.

14. The method of claim 13, wherein Fe^{2+} addition is made through delivery wells separate from aeration wells used for gas addition.

15. The method of claim 13, wherein Fe^{2+} addition is made through the aeration wells.